

# Society as a Force in Shaping Architecture

Dr. Wagih Fawzi Youssef

## Abstract

Simple shapes with few historical allusions have been used to represent the machine age and modernity. People who are extrovert in terms of their actions on the environment tend to decorate their houses more than others who shape their values in order to attain their own ideals. The objective here is not to describe the ideologies of societies, but rather to identify the current thinking of the values that underlie and thus distinguish the work of different architects. We need to understand the potential and limitations of the behavioral sciences in clarifying the various normative stances that have existed in the past and the stances of different styles with manifest differences in perception, and the pattern preferences of the designers. The important thing to remember is the limitation of the designed environment as a force in shaping society and to recognize that every act of design is a political act.

Keywords: perceptual learning, rational method, contradiction, political act, adaptation

## Introduction

The elements that are used when the designer represents the visual appearance of a building determines how a building is perceived. The external validity about the three dimensional world is low, however, the elements that one perceives is either simple or complex. Simple regular forms with repetitious elements are the easiest to see, for instance, the facades of buildings are subdivided into smaller units in an ordered manner. Most of these are subdivided on some mathematical series, but some are based on musical analogies. Though fundamental principles dictate the arrangement of the components of a composition, the ordering principle may not be obvious to all. Meanwhile a disordered environment is purely haphazard and not governed by an overall principle. When the principles of composition support each other, the composition appears ordered, and it is disordered when they do not. Contradiction and disorder are synonymous and are valid goals of design in order to articulate visually richer environments. The concept of proportional rhythm may be comprised of simple ratios and produce static compositions whereas the dynamic ratios such as the golden section are more pleasing. There are synchronistic processes in the brain which lead to the captivation of people by the golden section. There are other proportional cases such as Le Corbusier's Modular schema (1951) on the human body that constitutes an ordered environment at the human scale.

## Geometrical Shape of the Visual Environment

The magnitude and threshold of change in the environment required to arouse people depends on their habitation level and on the mood of the perceiver. Delight with the geometrical shape of the visual environment arises in four ways. First is the recognition that the building is designed in accordance with a principle of importance to the viewer. Second, the design fulfills its purpose. Third, the viewer can adapt to the visual complexity according to his habitation. If the

observer enjoys the design then his attitude toward the environment will be a positive one. Otherwise, the designer is confronted with an aesthetically illiterate person. For example, horizontal and vertical lines when used together are said to express a supporting surface and gravitational force. If the force and its induced field are equal in quality, a balance will be attained without tension, and the composition is dead, but if they are equal in strength a dynamic equilibrium is reached, and the composition is alive.

Perceptual learning is a process of developing one's ability to pay attention to finer details of environmental characteristics that are universally appealing. The process occurs at many levels. First, the pickup of information reinforces exploratory adjustment. Information reinforces the neural activity in the brain according to the degree of clarity and complexity. One that is pleasing is more interesting than one that is confusing. Order is a fundamental requirement for the aesthetic appreciation of the environment. Also, symbolic meaning of the built environment depends on its context. There are three levels of meaning: syntactic, semantic, and pragmatic. Syntactical meaning results from the location of a building in its surroundings; semantic meanings refer to the norms, idea or attitude that an element represents; pragmatic relates the symbol to those who use it. People communicate with each other through symbols for reinforcing a sense of belonging. Human needs are fulfilled through social and cultural mechanisms not related to the built environment.

Simple shapes with few historical allusions have been used to represent the machine age and modernity. People who are extrovert in terms of their actions on the environment tend to decorate their houses more than others who shape their values in order to attain their own ideals. Their ability to do this depends on their own knowledge. They have absorbed new technologies into their houses while others have sided with handicraftsmen. Some have allied themselves with the pure fine arts tradition and others with architecture as one of the serving needs. In some societies, climate and topography exert an influence on the shape of buildings, while others see that geographic environment is less important.

The objective here is not to describe the ideologies of societies, but rather to identify the current thinking of the values that underlie and thus distinguish the work of different architects. We need to understand the potential and limitations of the behavioral sciences in clarifying the various normative stances that have existed in the past and the stances of different styles with manifest differences in perception, and the pattern preferences of the designers. It is then clear that designs would be different even if every designer had the same understanding of positive theory. Goals are not established scientifically or even rationally, but our knowledge of the world does affect the decisions we make.

### The Basis of Design Differentiation

Discrepancies between what architects say is good architecture can arise for the following reasons: 1) The professed statements and the practiced work are for different audiences; 2) the architect was unable to get his professed position accepted in the marketplace; 3) the professed position was developed before the attempt to implement it, and the architectural consequences of

holding such a position were not foreseen; 4) the architect consciously or unconsciously treated the verbal position and actions as independent of each other; 5) the architect did not possess the intellectual or design skills to achieve what he, or she, was seeking, and possibly; 6) the architect was deliberately misleading in his written or oral statements. Despite all these problems, it is possible to make a list of all variables that differentiate the position of one environmental design from another.

The models of man that are used as a basis for design affect the image of what a good world is in the mind of the designer and thus they affect the character of the built environment. The model of man implicit in the manifestoes of the congresses of CIAM (Congrès International d'Architecture Moderne) in the 1930s was an organismic and sole model. With the rise of Post Modernism has come an increased concern with the symbolic nature of the built environment, the model of man as a systematic concern with a broader concern with human issues. Some Eastern philosophers see man as part of nature. The traditional garden was designed for the house with a view to contemplate. Trees are used to give an illusion of depth; in the West trees are used to create a sense of enclosure. Environmental designers display a wide variety of attitudes toward the natural environment and how it should be integrated into the natural environment.

The attitudes that designers have toward technology affect the nature of the buildings they design. Some architects embrace the latest technological developments, while others remain attached to technologies of the past. Yet another position is that the structure of a building should be expressed and used as part of the aesthetic character. All designing involves some advocacy for a set of patterns of objectives, or a set of human needs. Each movement in architecture is essentially political in nature as it fights to get its designers. There are two ways of doing this. One is by applying theoretical constructs, the other is by using the research methods of the behavioral sciences. The former approach can be applied to written statements and to the analysis of autobiographies and biographies of past designers. It is also important to apply the understanding yielded by psychological research on attitude formations to the interpretation of the positions taken by the design professions because decision making is a value-laden activity.

There are three basic issues here. The first has to do with establishing the behavioral program. The second is to establish the objectives a design has to meet. The third has to do with the question of how far designs should be taken, the degree of control the design has over the designed object. All designers have the social responsibility to know and understand the relationship between human behavior and the built environment. The important thing to remember is the limitation of the designed environment as a force in shaping society and to recognize that every act of design is a political act. It is important that designers know the limitation of the design environment, which helps them recognize that every act of design is a political act. There are a number of social concerns which have had a direct impact on design and on which designers have taken stances. In these designs social issues have been understood to fall within the architect's concerns. Some ideal community has been based on a philosophy of

egalitarianism, some others see that a good society is one in which the population is segregated by income; others have accepted the existing social structure of society.

### The Question of Segregation

In an open society people choose where they want to work and live within the limits of the resources they have available to them. The question is whether it is good for a segregated society. When land uses were highly integrated as was in the history of nations, this was regarded as bad for health and aesthetic reasons. This led to segregated land uses; industrial, commercial, and residential. The results have been liked by large segments of the population. The real problem is that many changes have taken place in the roles people play in society. The structure of the family has changed; occupational roles are changing; the pattern of interactions between people is changing. One manifestation of these changes in this century is gated communities.

What assumptions about these changing patterns should designers make? Some architects who regard architecture as pure art say none at all. The architects who do not hold this view ask about the issues that are involved. There is a number of debates over: 1) the design of behavioral systems that should form the basis for design; 2) the patterns that are used to fill the requirements of whatever behavioral system that is an appropriate basis for design. Thus the designer has to start with a model of behavior as the basis of design, and participate with other professionals, social and behavioral scientists, and clients. However, the basic philosophical question is: should the designed environment reflect social status of its inhabitants? Should we differentiate the social status of people by the external appearance of the buildings? Strangest of all is that this social value is not reflected in the designs of the Post-Modernists, who seem quite willing to accept the social structure of society as is in the development of their design philosophies.

This does not mean that people have to be indistinguishable. Individual tastes and emphasis on what is important should be reflected in society. The fundamental stance is that design should be based on the user's needs while recognizing that the basic requirements of the sponsors should be met first by order of importance, by the special purpose of the building, knowing that the needs will change over time but the building will remain the same. Designers should create environments that afford levels of privacy and to achieve this in both high density and low density environments. When this situation changes new advocacies will be necessary. Some architects have looked at societies where technological levels are not those of Western societies and have perceived a close fit between behavioral needs and the built form. This relationship must be perceived within its cultural context. The goal is to meet human needs in a manner that is not detrimental to the lives and to solve problems and enhance human experience. Systematic research enables architects to go beyond this; many psychological constructs enable us to place our own experiences in context and to go beyond them.

## The Humanistic Orientation

Some behavioral scientists believe that the role of the built environment in human life is minor and not worthy of their attention and some designers fear that the complexity that they believe they handle well intuitively will be reduced through the application of the reductionist philosophy. These fears are misplaced if one understands the nature of the contribution of the behavioral sciences to the development of environmental design theory. What we accept as scientific is based on a set of assumptions which act as a schema to guide explorations, perceptions, and analyses. The goal of creating an explicit positive theory base for environmental design is to have a set of descriptions and explanations of patterns of: 1) the decision process in environmental design; 2) the built environment and how people use and respond to it, and 3) the structural nature of the materials of the built environment and what they afford people in creating an artificial world.

Architects have stressed the role of the individual as a creative artist creating positive theory for environmental design. It was for this reason that the major views of the processes of perception, cognition, affect, and spatial behavior represent the state of our knowledge. The goal here is to update the humanistic orientation. Designers need to take more variables into consideration. Improvements depend on the critical and constructive assessment of experience and learning. Designers can be described as problem solvers. This does not mean however that the only concern is the removal of negative barriers to human development. The creation of environments that enhance human experience is a major concern. People continue to live by adapting themselves to change because if they stagnate they will perish. Life is too short to test all the possible solutions but an optimization of the work is possible. What are needed consist of 1) theories and models of design processes, and the relationship between people and the built environment; and 2) research method about people's use of them and the concern with model of individual and societal differences within culture, using theories of cognition and attitude formation as well as historical research methods that deal with the sub-processes of analysis, synthesis, evaluation, and decision making.

There have been comments on the process from Vitruvius' time. According to him, architectural design is the process of selecting parts to achieve a whole. Alberti thought about it in the same way. Descartes developed a set of ideas for structuring his own creative efforts in his own method. Laugier described the process of designing as one of decomposing a problem, solving these components, and then synthesizing these particular solutions. They referred to this as the rational method. Mario Salvadori has an image of the overall process. He divides architectural praxis into programming, schematic, preliminary design, working document, and construction phases. 1) Programming Phase aimed at the determination of the optimum problem input; 2) Schematic Phase – which ignores secondary variables on the basis that one's ideas will not be challenged in the future; 3) Preliminary Design Phase – an approximate solution in which all the essential variables are considered; 4) Working Document Phase to understand what is required to execute the design; 5) Construction Phase – producing shop drawings.

The conclusion of those steps is simplified as follows: 1) Defining the requisite behavior system; 2) Specifying the requisite behavior system; 3) Realizing the requisite physical system; 4) Verifying the resultant environment behavior system. The basic problem with these models is that they avoid dealing with the realities of human capabilities or the realities of the person-environment relationship and the symbolic meaning of the environment, the same trap as that of the masters of the Modern Movement in Architecture. They made erroneous predictions about future behavior patterns and the ability of the built environment to cause specific behaviors. They based their decisions on inadequate models of people and human behavior. Thus design of building program and investigation to see whether the present environment meets requirements is often wrapped up together in what appears to be a single activity consisting of iterative steps. In this case, models of the proposed systems are built and tested. Euclidean perspective and orthographic projections are standard models of this type frequently used by environmental designers to simulate the appearance of what is being designed. The use of computer generated animation to simulate the sequence of experiences resulted from a person's movement through cities or buildings to predict the performer's aspects of buildings such as the structure of buildings, circulation patterns, mechanical system usage, heat loss and gain, and fiscal performances, can modeled mathematically.

### The Performance of a Building

Architects use analogs to explain how the building designs they are proposing will work. In such cases, if predictions are correct it is only coincidental. The performance of a building is likely based on associative and analog techniques as well as on intuition. However, people have different attitudes toward the world and this is reflected in the decision criteria they use. A rational approach might be to select the design that works best and minimize the maximum risk and good security, knowing that there are two concerns basic to all designs; the commodity component and aesthetic component. The first providing shelter for activities and the second is affording delight. One of the problems is that architects have to make decisions but they need to know the nature of the environment and the human behavior to illuminate concerns of interior design landscape architecture and urban design. Some analyses distinguish between the physical, social, the psychological, and behavioral environment which recognize the existence of potential and effective environment that focuses on the world around to create a mental image which varies from person to person because it does not correspond to reality. We are all affected by internal and external forces that we have to adapt to since we exist within a cultural environment. The terrestrial environment is the source of many human experiences. The relationships of humans to each other are important in understanding the changing structure of the structure of the world and changing it.

Buildings comprise one subset of these changes. While the building does not change and its affordances do not change, the needs of the occupant changes the valence of the building. This proves that the environment is full of opportunities and constraints because of its characteristics. The way people structure surfaces of the world around them affects all interactions between them and the terrestrial environment which lead to change in the social and cultural environments of

people resulting in new activities and new aesthetic experiences which have meaning only to themselves. Thus the work of the designer will be influenced by their concepts while others are controlled by their environments. The latter view was central to the masters of Modernism in architecture who guided the people of the 20<sup>th</sup> c. who guided not only their perceptual processes but also emotional responses and actions, which in turn affect their behavior, the natural and built environment, the cultural environment, and the intrapsychic states of the people concerned. This has been called the environmental perception and behavior. These have influenced environmental design theory by their efforts to develop aesthetic philosophies. The result is a design based on inadequate evidence.

Now we are confronted with sets of theories of perception supposed to put together in the brain such as for example Empiricism, Transactionalism, Nativist and Rationalist theories. Architecture theories recently is influenced by the theoretical approach to perception. Gestalt theory assumes that the basis of integration is the spontaneous organization of sensory inputs to the brain while James Gibson and Eleanor Gibson (1969) suggest that perception is information based. This should not be confused with the information-processing cybernetic models of perception. Ulrich Neisser (1979) added the concept of schema as a connecting link between perception and the higher mental processes to the basic theory. One must also understand the theory of creating environmental design which includes concepts of form, isomorphism and field forces. Form is fundamental which stands for a closed element, the solid shape appears apart, behind which is the ground extends without interruption.

### Gestalt Theory and Adaptation

The forces which are experienced when looking at visual objects can be considered the psychological equivalent of physiological forces active in the brain center of vision. Although these processes occur physiologically in the brain, they are properties of the perceived objects themselves. Gestalt theory suggests that all perceptions are organized into figures. This is explained by the isomorphism between conceptual experiences and human neurological processes. This is the basis for the Gestalt theory of expression in art and architecture. Although these processes occur physiologically in the brain, they are properties of the perceived objects themselves. Findings can be explained in terms of learned association of patterns with feelings. Perception is considered to be a transaction in which the environment, the observer, and the perception are mutually dependent on each other. The image of the environment that an observer has depends on past experiences that are projected onto the present situation in relationship to one's needs governed by the expectancies and predispositions.

The result is that the information a person obtains from the environment has a probabilistic nature which is valid through actions. Thus perceptual information can be organized into three categories: operation that is needed by people to attain their goal; responsive; and inferential, that which forms the basis for coding systems for recognizing elements of architecture. This is a proof that people pay attention to what is important to them when they experience shapes of architecture. The hypothesis here is that the light, acoustics and other sources of perception can



convey information about the building directly without the mind having to reconstruct meaningless sense data. When a person moves, the shape of the building is transformed, and the details of the building are lost. Architects have manipulated this to create illusion of depth. This was particularly prevalent during the Renaissance architecture styles. Teatro Olimpica in Vicenza by Palladio has attained an illusion of great depth in the back stage. Our professor Edmund Bacon provided many examples of this phenomenon in his design of Philadelphia city U.S.A.; while he was leading us and walking in the city, stressing the importance of aesthetic experience in the urban scale which reflects a careful consideration of this concept in his design of Philadelphia city<sup>1</sup>.

People show a large capacity to adapt their activities to the affordances of new built environment, to adapt the built environment to their needs, and to learn new aesthetic values. The process central to this adaptability are learning, remembering, and generalizing. Learning takes place when an individual associates a new response to a given stimulus resulting in a permanent change in behavior. People tend to forget things over time, but time itself does not cause forgetting. Much of our own behavior is culture bound. It depends on how we have been socialized to like and dislike patterns of the environment. Changing the built environment would change the living condition and the lifestyle and aesthetic values of the people concerned. This has been reinforced by the work of sociologists and psychologists. Such studies show the actual standing patterns of behavior that constitute the lives of the individuals. They show the tremendous diversity of human activity and the way patterns of the environment are used.

### Flexible Design

The normative position of architects was that the affordance for the interference of paths of movement within buildings had to be reduced as of the concept of functionalism. However, the crossing of paths of movement and the circulation distance within buildings had to be reduced, while the crossing of paths may well serve positive ends as the need for people to see other people as the basis for potential interactions and a sense of security and the moving of goods in comparison to that required for the achievement of other goals. Open spaces invite a child to run. Popular gathering places are those that afford comfortable sitting, good light and ventilation. A well illuminated room is more welcomed than a dark one. This is one of the reasons why architectural design is an argument process.

Flexible designs are those in which the structure is easy to change to accommodate different needs. A room can have many functions at the same time or at different times. Extroverts seek closer contact with the external environment than do introverts. Cosmopolitan people seek segregation from their neighbors. The nature of the geographic environment, particularly the climate and topography. Culture and the nature of activity reflect the natural feature and climate of an area. Thus it is important for architects to understand what geometrical possibilities exist as the basis of designing. We are more aware when we feel uncomfortable when the environment is

---

<sup>1</sup> Professor Edmund Bacon was a professor of Urbanism in the University of Pennsylvania at the time when I was his graduate student.



subjectively too hot or too cold and noisy. The image of a place is corrected through continual use. When buildings have clear contours they tend to have a figure quality and to stand out from their surrounding and are noticed more easily.

### Territorial Boundaries and Privacy

Crowding is associated with a feeling of lack of control over the environment. Crowded conditions lead to negative behaviors. People should have sufficient personal space and territorial control over what is important to them. If another enters this space an individual shows displeasure. The ability of the layout of the environment to afford privacy through territorial control is important because it allows the fulfillment of basic human needs; the need for identity; the need for stimulation and the need for a frame of reference. Frame of reference needs are those involving the maintenance of one's relationship with others and the surrounding environment. Ethnologists explain these needs in terms of our biological pasts, behaviorists, in terms of reinforcement patterns within a culture. Extroverts like contact with the environment, introverts prefer courtyard houses. People often give up considerable physiological comfort to maintain cultural requirements. There is a correlation between our ability to call an area our own and our psychological comfort with it and our willingness to look after it. The perceived quality of the built environment is partially dependent on our ability to achieve desired levels of privacy. Social interactions occur when people's social needs are balanced by the sense of individual autonomy that comes with privacy. Ambiguous spaces, those that are neither public nor private, tend to mitigate against interactions. Physical privacy is a prerequisite of much socially interactive behavior because it provides a setting that allows a wider range of personal choices.

When territorial boundaries are clear people exert control over what goes on within them. There is evidence that people who live on a cul-de-sac interact more and know each other. Public plazas attract people because they wish to see what is going on from areas where interactions are not demanded of them. The creation of affordances for social interactions will lead to the formation of a sense of community, while a broader sense of friendships and relationships occurs in a village or small town than in a city. There is also a relationship to nature and outdoors where human activity is encouraged, and a greater sense of responsibility, for one's neighbor. People are habituated to seeing other people of the same ethnic type and the same facial proportions and demand that their buildings be in styles which they can identify and have a sense of belonging and esteem that the symbolism of the built environment is particularly important. Their houses must represent themselves and divided to public and private parts. To them the facades of their buildings represent the public image that a person wants to convey to society. The interior reveals the nature of the person's inner self. Sometimes the whole interior seems to have been designed for a general display. The forms of the buildings are largely irrelevant in terms of their associational meaning and the style of the buildings becomes a symbol of occurrence. Such images of what is good or bad, beautiful or ugly have shaped cities and landscapes throughout the world.